PIC/D-107-59
4 June 1959

MEMORANDUM FOR: Deputy Director (Plans)

SUBJECT: Evaluation of the Panoramic Camera for Geodetic Purposes

1. As you will recall, DOD-ARPA requested Mr. Charles S. Spooner of ANS to organize a joint-service ad hoc committee to make an evaluation of the panoramic camera's usefulness for geodetic purposes. This evaluation has been completed and will be presented to DOD (Dr. Bruce Billings) and ARPA representatives on 5 June 1959 at 1400 in Dr. Golovan's office, Rm. 3E161, Pentagon.

2. I have examined this evaluation and found it to be sound theoretically and quite comprehensive in detail. For your information, I have extracted Section VII - Conclusions and forward them herewith. It is my intention to be at the subject meeting and I will audit the proceedings or respond along any line that you or your representatives might care to suggest.

3. I feel certain that Dr. Golovan's next move will be to request that I suggest ways that the present panoramic camera might be modified or replaced to provide greater utility to the Army for geodetic work. A guide line here would also be appreciated.

ARTHUR C. LUNDAHL
Director,
Photographic Intelligence Center

1 Enclosure

cc: [redacted]

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Taken from - AN ANALYTICAL EVALUATION OF A THEORETICAL PANORAMIC CAMERA SYSTEM (U), by C. S. Spooner, Jr., dated 1 June 1959

VII. Conclusions

A. Photographs of high resolution could be expected from the theoretical panoramic camera system under evaluation and therefore could be expected to provide a valuable source of information for updating existing maps and charts.

B. Errors inherent in this panoramic camera system would exceed the errors in presently existing geodetic control nets; therefore, the resulting photography could not be used for precise mapping, surveying or geodesy. More specifically, one must conclude that:

1. The panoramic photography could not improve overall accuracy within a single geodetic datum.

2. The panoramic photography could not improve geodetic ties between datums.

3. Orbital information developed by this theoretical system could not be used to improve geodetic positional information.

4. Similarly, ground positions derived from this system could not be used for establishing satellite orbits to the accuracy required.

5. The panoramic photography should permit the addition of new positional points with reference to nearby identifiable geodetic control. This would amount to improvement in quantity of positional information, but not in quality. The new points could not provide new ties to a control net.

6. If the panoramic photography were used with collateral material to extend and locate new points 20 miles beyond existing geodetic control nets, errors of $\frac{1}{2}$ mile could be expected with reference to existing control; if 40 miles beyond control, errors could exceed one mile. These resulting errors would be in addition to errors in the geodetic control net.

C. Complete photographic coverage over politically inaccessible areas, under this theoretical system, would require approximately 69 orbital days.